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Studies on spirostreptoid millipeds. XVIII. Revalidation of the generic name Doratogonus Attems, 1914, and the status of the name Spirostreptus cristulatus Porat, 1872 (Diplopoda: Spirostreptida)

By Richard L. Hoffman

ABSTRACT

Millipeds previously referred to the two South African nominal genera *Alloporus* (Porat, 1872) and *Doratogonus* (Attems, 1914) differ only in the place of origin of the ozopore series, and recent specialists have combined the two taxa under the older name *Alloporus*. However, examination of the type species of that name, *A. dissimilis* Porat, 1872, strongly suggests that *dissimilis* is not congeneric with other species now placed in *Alloporus*, and for them the younger name *Doratogonus* is revived. A generic diagnosis is provided, and the characters of the name *Spirostreptus cristulatus*, heretofore not placed in any currently recognized genus, are described and illustrated from the type specimen. *S. cristulatus* is a senior subjective synonym of *Doratogonus setosus uncinatus* Attems, 1914; *Spirostreptus setosus* Voges, 1878, is considered to be a full species of *Doratogonus* and not a subspecies of *cristulatus* with which it is extensively sympatric in Natal, South Africa.

INTRODUCTION

A considerable number of South and Central African spirostreptids have been described, or subsequently placed, in the genera *Alloporus* and *Doratogonus*. The members of these two nominal taxa have long been known to share not only the same basic gonopod structure but the majority of peripheral features as well, the sole point of distinction between the two groups having been the origin of the ozopore series on the 5th body segment in *Alloporus*, 6th in *Doratogonus*. In addition, a number of South American species have been also referred to *Alloporus* because of the pore character, but these — having major differences in genitalic form — are all now placed in other genera.

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In recent years, most specialists on diplopod taxonomy have tended to de-emphasize the importance of the pore character in those cases, like that under consideration now, in which such a feature arbitrarily separates species very similar in all other character systems. The latest comprehensive treatment of spirostreptids (Krabbe, 1982) has formally combined the two generic concepts, resulting in a genus *Alloporus* with 28 species and subspecies. While I strongly endorse this long overdue action, I now find it necessary to revive *Doratogonus* from synonymy because, in my view, *Alloporus* cannot be used in its traditional sense despite a long history of precedence.

It will be recalled that *Alloporus* (von Porat, 1872) was originally distinguished from *Spirostreptus* solely by the place of origin of the pore series on the 5th segment and the occurrence of only eight pectinate mandibular lamellae. The type material of the type species *A. dissimilis* apparently did not include males, and carried no closer indication than "Caffraria." The structure of male genitalia was not at that time accorded much systematic importance, whereas minor differences in peripheral structure were exalted out of all proportion, and *Alloporus* therefore became firmly ensconced in diplopod literature to denominate any spirostreptoids having ozopores on segment 5. As lately as two decades ago (1966) it was still recognized by such specialists as Schubart and Lawrence as the correct name for some of the commonest big South African species, even though in fact nobody had any idea what *A. dissimilis* itself might be like.

Actually the original description, although based on females, provides some critical information on that point. The number of pectinate lamellae (8) is too low, and the size of *A. dissimilis* (40 mm long) much too small, for this species to be congeneric with any of the other regional taxa placed in *Alloporus*. In 1983 I had the opportunity to study milliped types of von Porat preserved in the Naturhistoriska Riksmuseet, Stockholm, and looked forward with great interest to attempting a personal identification of *dissimilis*. Regrettably, the bottle now contains only disarticulated and decalcified shards, even the segments themselves separated into prozona and metazona, presumably the result of initial preservation in overly strong or acidic spirits. The only intact parts of what seemed to have been two specimens are now a single head and one separate mandible.

The only tangible information I could obtain from these papery ruins, beyond that mentioned in the original description, is that the larger specimen was mature (no legless penultimate segment), that the metazona have no sigilla, and that the gnathochilarium — of typical spirostreptid form — completely lacks mental and stipital setae.

All of the species presently included in *Alloporus* (sensu auctorum) are at least twice as long as *dissimilis*, have 10-12 pectinate lamellae instead of 8, are provided with one to many rows of sigilla, and have numerous small setae on the distal half of the stipes. I do not believe that any case whatever can be made for considering them congeneric with *dissimilis*, and herewith propose to restrict the name *Alloporus* to this so-far enigmatic species. Eventually some South African milliped will be discovered that conforms to the known peripheral features of

dissimilis; until then *Alloporus* may be placed on the list of *genera incertae sedis* and *Doratogonus* revived to accommodate the large species heretofore wrongly placed in *Alloporus.* I have been able to study material of many of these species, and believe that the genus as presently understood is patently heterogeneous. Denomination of the genera into which it must be rendered is, however, deferred until completion of revisionary work now in progress, and the following generic definition is therefore only provisional and far too inclusive.

Doratogonus

Doratogonus Attems, 1914, Zoologica (Stuttgart), vol. 25 (65/66), p. 105. Type species: *Spirostreptus setosus* Voges, 1878, by subsequent designation of Jeekel, 1971.

Alloporus (nec Porat 1872) Krabbe, 1982, Abhandl. Naturw. Ver. Hamburg, N.F., vol. 24, p. 113. — Hoffman & Howell, 1983, Rev. Zool. afr., v. 97, p. 626.

Diagnosis: Moderate to large-sized spirostreptids, length from 90 to 150 mm; anterior corner of collum strongly produced (digitiform) in males; sigilla in one or several rows; ozopores beginning on 5th or 6th segment. 1st legs of males without notable modification: expanded coxal region with dispersed setules, basal process of prefemur small and subtriangular, scarcely extended beyond edge of the podomeres. Mandible with 10 to 12 pectinate lamellae; dentate lamella with several rounded lobes ("teeth").

Coxal folds of gonopods variable, but apex of posterior fold usually rounded and with a small acute lobe on lateral edge; anterior fold apically setose and generally extended distad as a slender projection, often with a strongly sclerotized, dark angular process or series of small teeth on the anteromedian surface near midlength. Telopodite (Fig. 1) very characteristic in shape, the shaft long and very slender, broadly curved upon emergence from gonocoel, extending proximad nearly to level of paracoxites where the long, curved, femoral process originates, also at the same level the main branch describes first a prominent 360° torsion and then a nearly complete loop or circle before continuing on to the greatly attenuated postfemoral division; latter with a long, slender, subterminal element directed parallel to the solenomerite. Basal region of postfemur often broadly expanded and laminate, sometimes with small marginal dentation or lobe.

Remarks: A detailed revision of this genus is much to be desired; in my opinion it will result in the recognition of several structurally and geographically homogeneous smaller genera recognized largely on the basis of the gonocoxal fold modification. Certainly a good case can be made for separating off *A. hamifer* and *A. fallax* of Attems, as well as *multiannulatus* Carl, *regularis* Attems, and *kindanus* Attems. I concur with Schubart (1966) in recognizing *Otostreptus* as a separate genus, and exceed his initiative by displacing it from any close affinity with *Doratogonus.* Quite a few species have been wrongly described in *Spirostreptus* and other unlikely genera, and these will have to be relocated in the inevitable

future tribe Doratogonini. A start in this direction has been made already by Hoffman & Howell (1983) in proposing *Dendrostreptus* as a monobasic genus for *"S." macracanthus* Attems.

For the present, aside from revalidating *Doratogonus* as the correct name of the dominant genus of the group, I wish only to establish the status of an old name published by von Porat in 1872 — *Spirostreptus cristulatus* — which applies to a Natalian doratogonid very closely related to *D. setosus* and which, if the two are found to be conspecific, would have nomenclatorial priority over it.

Doratogonus cristulatus (von Porat), comb. nov.

Spirostreptus cristulatus von Porat, 1872, Ofv. K. Vetensk.-Akad. Forhandl. no. 5, p. 28. Male holotype (Naturh. Riksm. Stockholm) labeled only "Caffraria/ Wahlberg."

Doratogonus setosus uncinatus Attems, 1928, Ann. South Afr. Mus., vol. 26, p. 338, figs. 290-292. Syntypes (S. Afr. Mus.) from Krantzkop, Howick, and Rietvlei, Natal. **New Synonymy!**

Alloporus setosus uncinatus: Krabbe, 1982, Abhandl. Naturw. Ver. Hamburg, N.F., vol. 24, p. 124 (= junior secondary homonym of *Alloporus uncinatus* Attems, 1914).

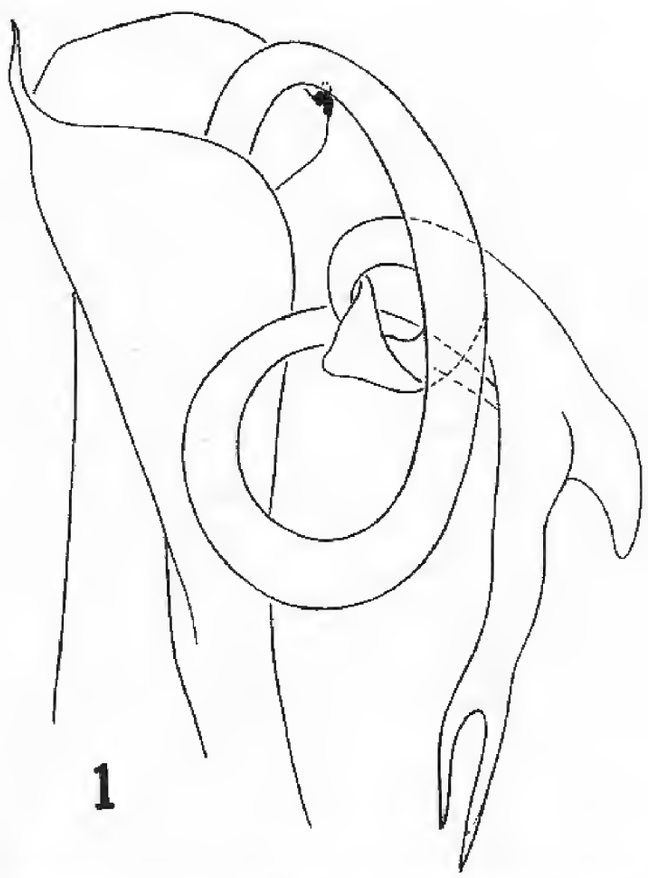

Fig. 1. *Doratogonus cristulatus* (Porat). Distal half of left gonopod of holotype, anterior aspect, setation omitted.

The status of this taxon remains in considerable doubt. Described by Attems as a subspecies of *setosus*, and so regarded by all subsequent authorities, its known collection sites do not comprise a range distinct from that of nominate *setosus*. The map given by Schubart (1966, p. 97) is incorrect in giving such an impression; see instead that in this paper (Fig. 2) which is based on more precise plotting of the known localities. Both forms appear to occur at Durban.

Since subspecific status normally implies at least partial allopatry, it would appear that the two taxa involved must be regarded either as innominate variants or as closely related sibling species. The latter possibility seems to me the more plausible. The following differences between them have already been noted in the literature: *setosus* has the sigilla typically in a single row and its legs are uniformly yellowish, the posterior gonocoxal fold extends as a rounded lobe beyond the end of the anterior fold and the femoral process is slender; the sigilla of *cristulatus* are

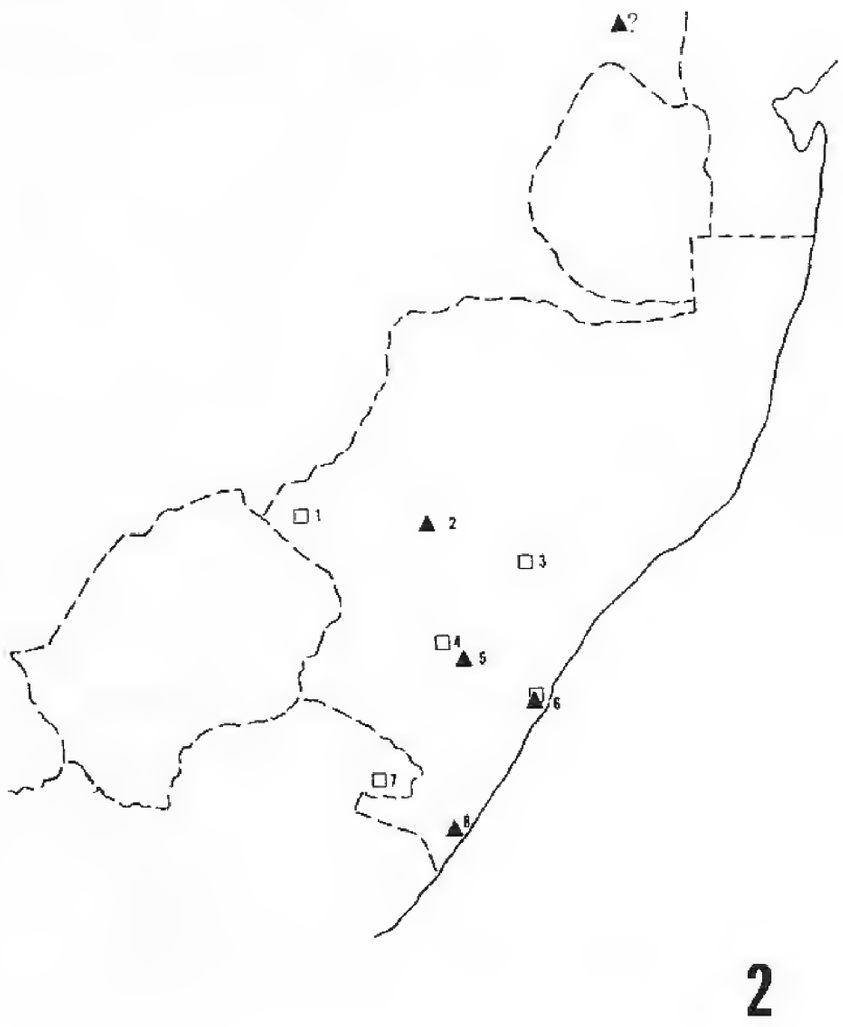

Fig. 2. Distribution of *Doratogonus cristulatus* (triangles) and *D. setosus* (open squares) in Natal, South Africa, and adjacent political units. Localities identified by number: 1, Natal National Park; 2, northeast of Weenen; 3, Kranskop; 4, Howick; 5, Pietermaritzburg; 6, Durban; 7, Rietvlei, Cape Province; 8, Port Shepstone; ?, Kruger National Park, Transvaal (see discussion in text).

in two rows and the legs are annulate with brown, the end of the posterior gonocoxal fold only slightly exceeds the end of the anterior, and the femoral process is broadly laminate. Possibly the direct comparision of specimens would reveal subtle differences in other peripheral character systems as well as those noted.

Doratogonus setosus (Voges)

Spirostreptus setosus Voges, 1878, Zeitschr. Wiss. Zool., vol. 31, p. 165, fig. 26. Male syntypes (Zool. Mus. Hamburg) labeled "Port Natal" (the old name for Durban).

Doratogonus setosus: Attems, 1914, Zoologica (Stuttgart), vol. 25 (65/66), p. 107, figs. 90, 92.

Doratogonus setosus setosus (by implication), Attems, 1928, Ann. South Afr. Mus., vol. 26, p. 338.

Alloporus setosus: Krabbe, 1982, Abhandl. Naturwiss, Ver. Hamburg, N.F., vol. 24, p. 123.

This is apparently a common milliped in southern Natal. Lawrence (1966) has also recorded it, without comment, from the Kruger National Park, Transvaal. Such a significant extension of the known range is interesting and invites further inquiry; such a degree of geographic separation from the main range would seem to be paralleled by modification of gonopod structure.

Attems (1928) mentioned material of *setosus* from Umtali (now Mutare), Zimbabwe, which would also seem to be quite out of the expected range of the species. In fact Lawrence (in Schubart, 1966) suspected that Attems' Umtali was an error for Umhlali, near Durban, Natal. Although such a transposition seems plausible, it may be noted that the catalog number (SAM 13742) of the "Umtali" material falls in the series (13736-742) assigned to species which are known to be endemic in Zimbabwe.

If the Kruger Park record can be confirmed, credence of the Umtali label would be greatly enhanced, even though this large species seems not to have been taken elsewhere in Transvaal or Zimbabwe in recent years.

REFERENCES

Attems, C., 1914. Afrikanische Spirostreptiden, nebst Ueberblick ueber die Spirostreptiden orbis terrarum. *Zoologica* (Stuttgart) 25(65/66): 1-233.

Attems, C., 1928. The Myriopoda of South Africa. *Annals of the South African Museum* 26: 1-431.

Hoffman, R. L., and K. M. Howell, 1983. Dendrostreptus, a new genus for an arboreal Tanzanian milliped, with notes on related forms. *Revue Zoologie africaine* 97: 626-632.

Krabbe, E., 1982. Systematik der Spirostreptidae (Diplopoda, Spirostreptomorpha). *Abhandlungen des Naturwissenschaftlichen Vereins in Hamburg* (NF) 24: 1-475.

Lawrence, R. F., 1966. The Myriapoda of the Kruger National Park. *Zoologica Africana* 2: 225-262.

von Porat, C. O., 1872. Myriapoda Africae australis, in Museo Regio Holmiensi asservata, recensuit. Pars. II. Diplopoda. *Ofversigt af Koniglichen Vetenskaps-Adademiens Forhandlingar* 1872(5): 3-45.

Schubart, O., 1966. Diplopoda III, Pselaphognatha, Opisthospermophora, Colobognatha, in: *South African Animal Life (Results of the Lund University Expedition in 1950-1951)* 12: 9-227.

Address of the author:

Dr. Richard L. Hoffman
Radford University
Radford, Virginia 24142, USA